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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/758,869

01/16/2004

Nusrallah Jubran

3216.63US01

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24113 7590 11/06/2007

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EXAMINER

NOTE, JANIS L

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

11/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/758,869

Applicant(s)

JUBRAN ET AL.

Examiner

Janis L. Dote

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 26-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 26-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

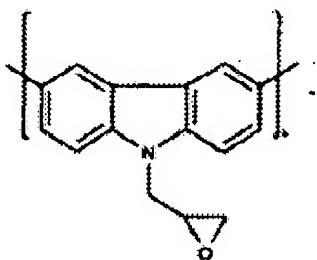
1. The examiner acknowledges the amendments to claims 1, 9, and 26 filed on Sep. 4, 2007. Claims 1-16 and 26-30 are pending.

2. The objection to the abstract set forth in the office action mailed on May 24, 2007, paragraph 3, has been withdrawn in response to the amended abstract filed on Sep. 4, 2007.

The objections to the specification set forth in the office action mailed on May 24, 2007, paragraph 4, items (2) to (5), have been withdrawn in response to the amended paragraphs beginning at page 3, line 19, page 4, line 28, page 23, line 20, page 13, line 13, page 15, line 15, page 15, line 4, page 19, line 29, and page 22, line 11, of the specification, filed on Sep. 4, 2007; and in response to applicants' comments in the remarks filed on Sep. 4, 2007, page 21, first full paragraph.

The objections to the specification under 37 CFR 1.75(d)(1) set forth in the office action mailed on May 24, 2007, paragraph 5, have been withdrawn in response to the amended paragraphs beginning at page 10, line 6, and page 23, line 20, of the specification, filed on Sep. 4, 2007, and the inserted paragraphs at pages 5 and 24 of the specification, filed on Sep. 4, 2007.

The rejection of claims 26-30 under 35 U.S.C. 102(b) over Bouguettaya, et al., Journal of Applied Polymer Science, Vol. 73 (1999), pp. 1483-1492 (Bouguettaya), as evidenced by applicants' admission I, set forth in the office action mailed on May 24, 2007, paragraph 11, has been withdrawn in response to the amendment to claim 26 filed on Sep. 4, 2007. That amendment to claim 1 added the limitation that "the substituents on the carbazolyl group do not include heterocyclic groups." As discussed in the rejection in the office action mailed on May 24, 2007, paragraph 11, Bouguettaya discloses the compound poly(N-glycidyl carbazole)



where n is an integer of more than one. The Bouguettaya compound is outside the scope of the formula recited in instant claim 26.

3. The disclosure is objected to because of the following informalities:

The specification discloses that one or more of the methylene groups in the  $-(CH_2)_m-$  group can be replaced by a "CR<sub>4</sub>." See the specification, page 3, lines 26-29, page 5, lines 7-10, page 10, lines 11-14, and page 23, lines 25-28. However, it is not clear how one methylene group, which is divalent, can be replaced with a group that is not divalent.

Appropriate correction is required.

Applicants' arguments filed on Sep. 4, 2007, have been fully considered but they are not persuasive.

Applicants assert that "one of ordinary skill in the art . . . would understand that if the open position was to be filled with a substituent such as an H atom, then the CR<sub>5</sub>CR<sub>6</sub> substitution would be used for the methylene group. Hence, something is different. Instead, the available bonding position [in the group "CR<sub>4</sub>"] is used to form a double bond since a chemical substituent is not intended for the open position."

Applicants' assertions are not persuasive. Applicants' assertions are mere attorney argument that is not supported by any objective evidence on the present record. (Contrary to applicants, no exhibits were attached to the remarks section filed on Sep. 4, 2007.) A person having ordinary skill in the chemical arts would not have known that applicants intended the

group "CR<sub>4</sub>" to form a double bond. The instant specification provides no guidance to a person having ordinary skill in the art that "CR<sub>4</sub>" forms a double bond to render it divalent. The instant specification merely discloses that one or more of the methylene groups in the group  $-(CH_2)_m-$  can be replaced by a "CR<sub>4</sub> group." Given the plain language of the objected disclosure in the instant specification, a person having ordinary skill in the art would conclude that the disclosure of the replacement of the divalent methylene group with a "CR<sub>4</sub>" was in error. A person having ordinary skill in the art would not have known what is meant by the disclosure of replacing a  $-CH_2-$  with the non-divalent group "CR<sub>4</sub>". The meaning of every term used in a claim should be apparent from the prior art or from the specification and drawings at the time the application is filed. Applicants are "required to make clear and precise the terms that are used to define the invention whereby the metes and bounds of the claimed invention can be ascertained." MPEP 2173.05(a)I (8<sup>th</sup> edition, Rev. 5, Aug. 2006).

Accordingly, for the reasons discussed above, the objection stands.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-16 and 26-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Instant claims 1, 9, and 26 are further indefinite in the phrase "one or more of the methylene groups [in the formula  $-(CH_2)_m-$  group] is optionally replaced by a . . . a  $CR_4$  . . . ." because it is not clear how one methylene group, which is divalent, can be replaced with a group that is not divalent.

Instant claim 26 is further indefinite in the phrase "Z is a linking group comprising a bond, a  $-(CR_5=CR_6)_n-$  group, a  $-CR_7=N-$  group." The phrase is missing the conjunction "and" or "or." It is not clear whether Z is required to comprise all three of the recited elements or just one.

Applicants' arguments filed on Sep. 4, 2007, as applicable to the rejection of claims 1, 9, and 26 above have been fully considered but they are not persuasive.

Applicants' arguments regarding the group "CR<sub>4</sub>" has been addressed in paragraph 3 above. Accordingly, the rejection of claims 1-16 and 26-30 stands.

6. In the interest of compact prosecution, the examiner has interpreted the claim language in claim 26 as requiring the linking group Z to comprise a bond, a  $-(CR_5=CR_6)_n-$  group, or a  $-CR_7=N-$  group. In other words, claim 26 only requires Z to comprise one of the three elements. Support for the examiner's interpretation is found in originally filed claim 26 and in the originally filed specification at page 24, lines 2-4, and compounds of formulas (1) and (2) at page 24.

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

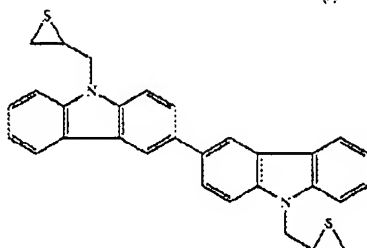
8. Claims 26-30 are rejected under 35 U.S.C. 102(e) as being anticipated by US 7,014,968 B2 (Tokarski)

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the



invention "by another," or by an appropriate showing under 37 CFR 1.131.

Tokarski discloses making charge transport material represented by compound 9 of the formula



See col. 18, compound 9, and col. 24, line 35, to col. 25, line 47. According to Tokarski, compound 9 is formed by reacting the epoxy analog of compound 9 with ammonium thiocyanate. Col. 19, lines 36-37 and 43-47; and col. 25, lines 41-46. In other words, compound 9 is formed by replacing the oxygen atoms in its epoxy analog with sulfur atoms. The epoxy analog of compound 9 meets the compositional limitations of the formulas recited in instant claims 26-30.

Tokarski does not identify the epoxy analog of compound 9 as a charge transport material as recited in the instant claims. However, as discussed above, the epoxy analog compound meets the compositional limitations recited in the instant claims. Thus, it is reasonable to presume that the epoxy analog compound has charge transporting properties. The burden is on applicants to

prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Applicants' arguments filed on Sep. 4, 2007, have been fully considered but they are not persuasive.

Applicants assert that Tokarski does not teach the compound recited in the instant claims. Applicants assert that Tokarski "does not disclose an epoxy or oxiranyl group, except as a precursor to the organophotoreceptor containing the thiiranyl group. Nowhere in the '968 patent [Tokarski] is it indicated that the epoxy-containing precursor could operate as an organophotoreceptor." Applicants further assert that the notion that the precursor could operate as an organophotoreceptor is based upon the instant application and claims, and the use of impermissible hindsight.

Applicants' assertions are not persuasive for the following reasons:

First, instant claims 26-30 are drawn to a charge transport compound, not to an organophotoreceptor as recited in instant claim 1.

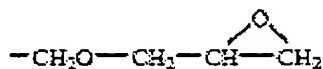
Second, the precursor epoxy analog of compound 9 in Tokarski meets all the compositional limitations of the formulas recited in instant claims 26-30. A chemical composition and its properties are inseparable. They are one and the same thing.

"Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present." In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Thus, the prior art is reasonably presumed to have the charge transport property of the claimed subject matter. Applicants have not met their burden to show otherwise. Discovering and reciting a new property of an old composition does not make the old composition patentable.

Accordingly, the rejection of claims 26-30 stand.

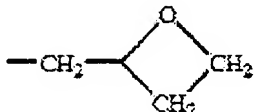
9. Claims 26, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,416,915 B1 (Kikuchi).

Kikuchi discloses the compounds 31 and 32 at cols. 19-22. The compounds 31 and 32 comprise two chain-polymerization groups  $-\text{CH}_2\text{O}-\text{C}(\text{O})-\text{CH}=\text{CH}_2$ . Kikuchi teaches that the chain-polymerization functional groups can equally be the chain-polymerization functional group



Col. 6, line 16, and compound 29 at cols. 19-20. Kikuchi teaches that the chain-polymerization functional group can also

equally be the chain-polymerization group

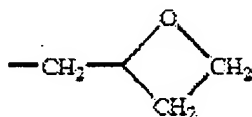
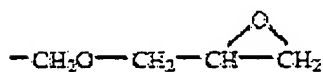


Col. 6, line 30, and compound 23 at cols. 17-18. Kikuchi discloses that said hole transporting compound comprising at least two chain polymerization functional groups, i.e., compounds 23, 29, 31, or 32, forms a polymerizate. According to Kikuchi, when a surface layer in an electrophotographic photoreceptor comprises said polymerizate, the photoreceptor has high film strength leading to improved anti-abrasion and anti-scar characteristics. Col. 2, lines 52-56, and col. 3, lines 5-23.

The resulting hole transporting compounds comprising at least two chain polymerization function groups that are rendered obvious over the teachings of Kikuchi meet the compositional limitations of the formula recited in instant claims 26, 28, and 29. The resulting compounds comprising the oxiranyl groups are represented by the formula recited in instant claims 26 and 29, when Z comprises "a bond", E<sub>1</sub> and E<sub>2</sub> are oxiranyl, and X<sub>1</sub> and X<sub>2</sub> are -CH<sub>2</sub>OCH<sub>2</sub>-. The resulting compounds comprising the epoxy groups are represented by the formula recited in instant

claims 26 and 28, when Z comprises "a bond" and  $X_1$  and  $X_2$  are  $-\text{CH}_2-$ .

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kikuchi, to substitute the two chain polymerization functional groups  $-\text{CH}_2\text{O}-\text{C}(\text{O})-\text{CH}=\text{CH}_2$  in the Kikuchi compounds 31 or 32 with the equivalent chain polymerization functional groups



or

. That person would

have had a reasonable expectation of successfully obtaining a hole transporting compound comprising at least two chain polymerization function groups that is capable of forming a polymerizate which when used in the surface of an electrophotographic photoreceptor improves the anti-abrasion and anti-scar characteristics of the photoreceptor.

Applicants' arguments filed on Sep. 4, 2007, have been fully considered but they are not persuasive.

Applicants assert that claim 26 has been amended such that Kikuchi does not teach all of the claim limitations. Applicants further assert there is no showing of a suggestion or motivation to modify the teachings of Kikuchi. Applicants assert that

"[w]ith the rather long list of examples of hole-transporting compounds having at least two chain-polymerization function groups, the compounds suggested by the Examiner as obvious could not have been provided, but were not."

Applicants' assertions are not persuasive for the following reasons:

First, instant claim 26 recites that "Z is a linking group comprising a bond, a  $-(CR_5=CR_6)_n-$  group, [sic: or] a  $-CR_7=N-$  group" (emphasis added). The transitional language "comprising" is open. As a result, instant claim 26 does not exclude the presence of other groups. In other words, any linking group meets the Z limitation recited in instant claim 26 so long as it comprises at least a bond. Z therefore includes aromatic groups. In fact, instant claim 26 recites that  $R_5$ ,  $R_6$ , and  $R_7$  can be an aromatic group. Thus, for the reasons discussed in the rejection above, the hole transporting compounds rendered obvious over the teachings of Kikuchi meet all the compositional limitations of the formula recited in instant claims 26, 28, and 29.

Second, as discussed in the above rejection, Kikuchi clearly teaches that the chain-polymerization functional group can equally be the epoxy groups taught by Kikuchi. Thus,

Kikuchi provides a reason, suggestion, and motivation to substitute the chain polymerization functional groups in Kikuchi compounds 31 and 32 with the Kikuchi epoxy groups.

Furthermore, the disclosure of a reference is not limited to its examples, or to its preferred embodiments. Rather, the reference is relevant for all that it teaches. See In re Heck, 216 USPQ 1038, 1040 (Fed. Cir. 1983). "In a section 103 inquiry, 'the fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered.'" Merck & Co. Inc. v. Biocraft Laboratories Inc., 10 USPQ2d 1843, 1846 (Fed. Cir. 1989) (quoting In re Lamberti, 192 USPQ 278, 280 (CCPA 1976)).

Accordingly, the teachings in Kikuchi render prima facie obvious the compounds recited in the instant claims. The rejection of claims 26, 28, and 29 stands.

10. Claims 1-16 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

The claims are allowable over the prior art of record for the reasons discussed in the office action mailed on May 24,

2007, paragraph 14, which are incorporated herein by reference.

11. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status



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JLD  
Nov. 4, 2007

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